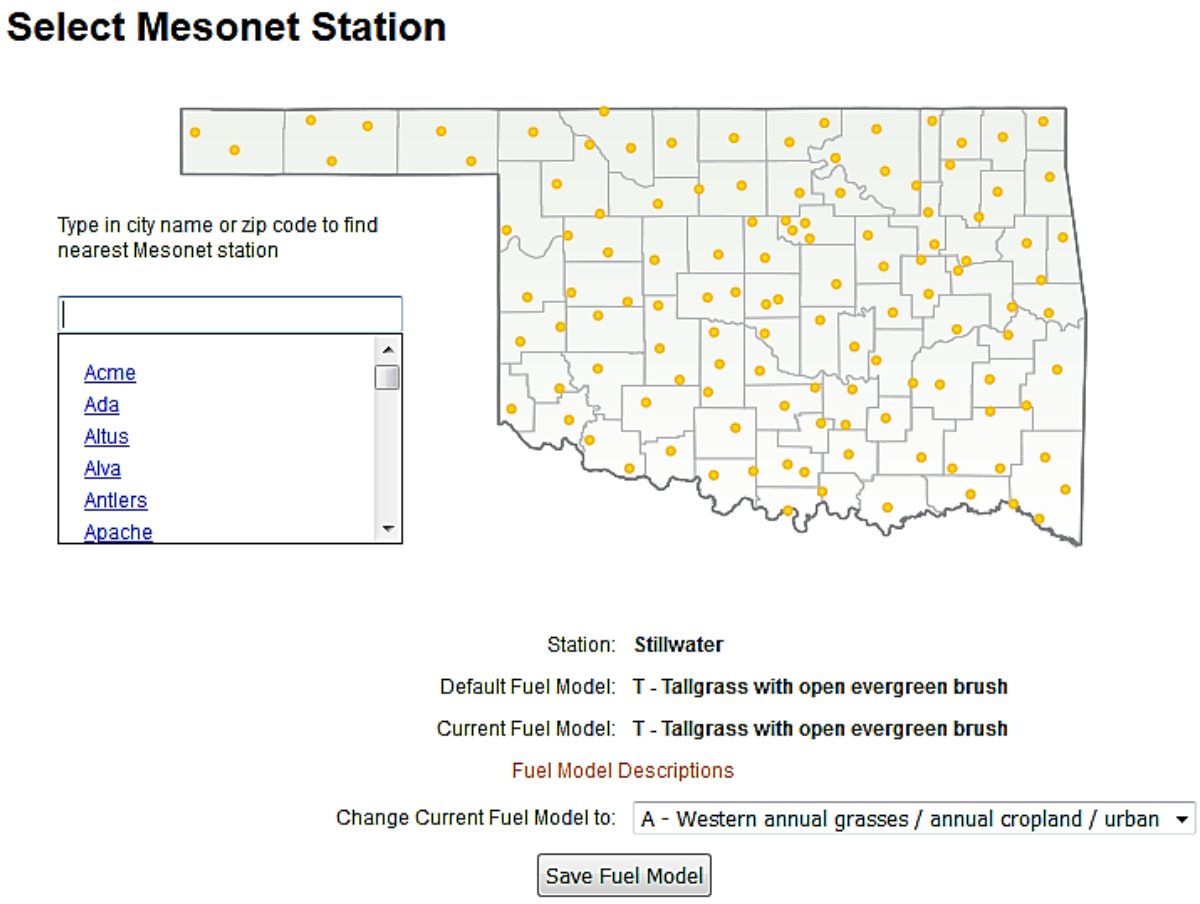
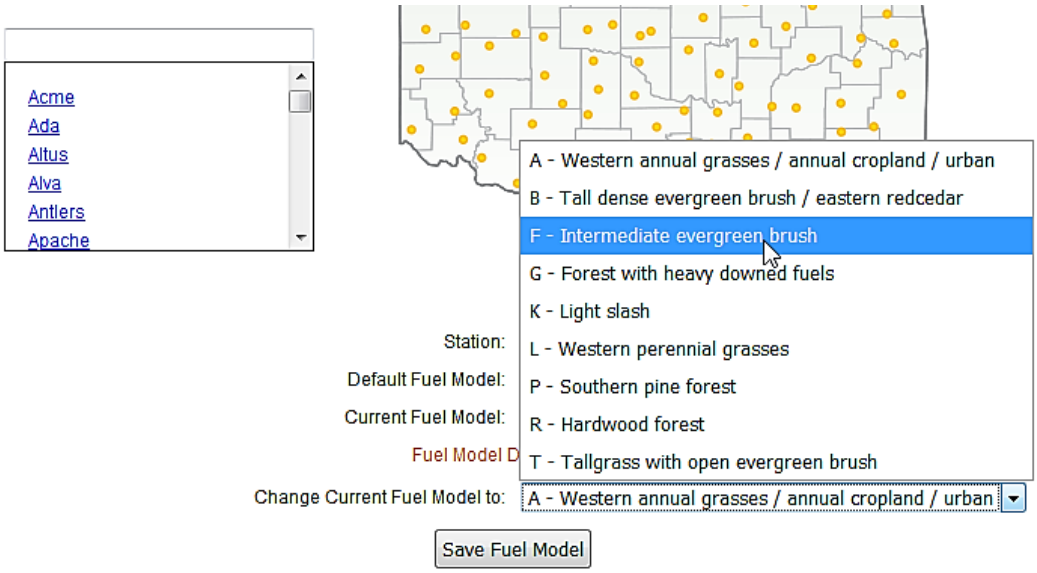
Station Fuel Model Options

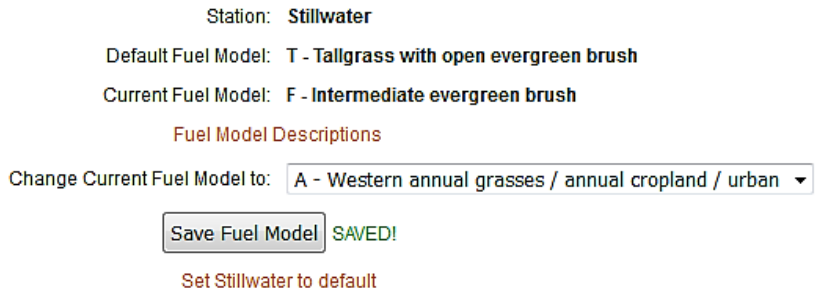
This section of OK-FIRE is accessible by the link at the bottom of the left menu section. It allows the user to change the fuel model used at ANY Mesonet site. The "default" model assigned to a given Mesonet site is based on the 500-m fuel model default map (see "Default Fuel Model Zoom Map"). Whichever 500-m pixel of land a particular Mesonet site is located in, the fuel model assigned to that pixel is also assigned to that Mesonet site as its default fuel model. However, that may not be the fuel model that the user wants to use to represent the landscape of concern and this page allows him or her to select a different fuel model from the default one.



Upon entering this section, you will see the PRIMARY (default) station from the home page listed (Stillwater in this case) as well as its DEFAULT (Model T) and the CURRENT fuel model being used. These will be the same if the user hasn't changed the default fuel model prior to coming to this page. To change to a different fuel model, use the pull-down menu in the "Change Current Fuel Model to:" field and select the fuel model of choice.



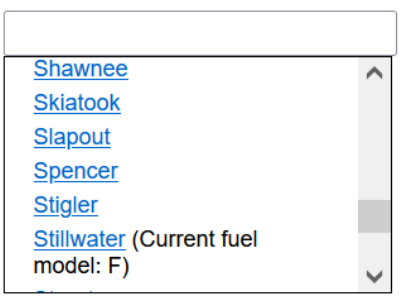
In this case we will select Model F (intermediate evergreen brush). Hit "Save Fuel Model" to save it as the CURRENT fuel model. You will see a brief green message ("SAVED!) upon saving the fuel model and you will also note that the "Current Fuel Model" has changed from T to F.



Model F will now be assigned to the Stillwater station in all the fire danger model calculations (i.e., BI, SC, ERC, and IC) and will remain the current Stillwater fuel model until the user changes it either back to the default (Model T) or yet a different fuel model. Note, however, that in the map products, the default fuel models will be used.

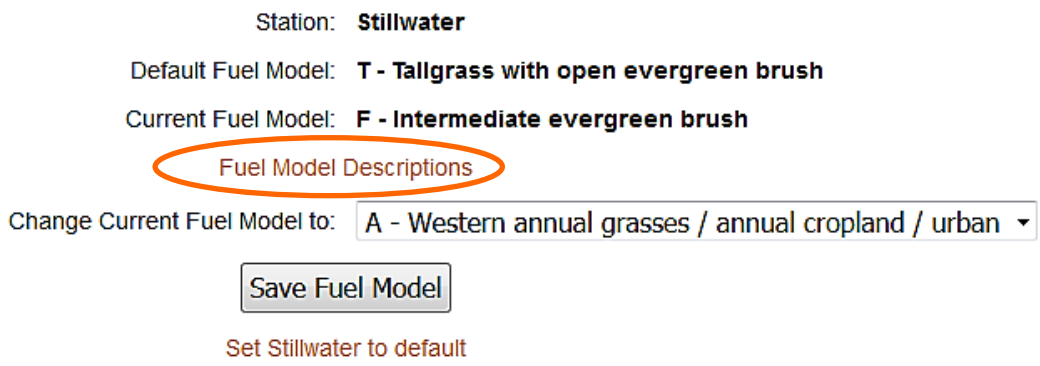
To change a fuel model for a different station (aside from the PRIMARY one on the home page), you can either click on the station dot on the map or access the alphabetical menu of Mesonet stations. Then repeat the process above.

Another nice feature allows you to easily see the Mesonet stations you have changed from their default fuel models. As you scroll down through the alphabetical list of stations, any station that you have changed from the default will be clearly noted (as in this case, Stillwater):



Fuel Model Descriptions

Beneath the Default and Current fuel model listings, there is a link called “Fuel Model Descriptions” (encircled in orange below):



Hitting this link will take you to a pop-up box which describes both in text and photos some of the characteristics of the fuel models which are available:

Description of OK-FIRE Fuel Models

In OK-FIRE there are 9 available NFDRS (National Fire Danger Rating System) fuel models. These models are based off the 1988 NFDRS fuel models. Most have been modified in part to be more realistic for Oklahoma landscapes and climate conditions. The models that have not been modified are B, F, G, and K. Here are the 9 available fuel models:

Grassy Models

A - Western annual grasses / annual cropland / urban
L - Western perennial grasses
T - Tallgrass with open evergreen brush

Brushy Models

B - Tall dense evergreen brush / eastern redcedar
F - Intermediate evergreen brush

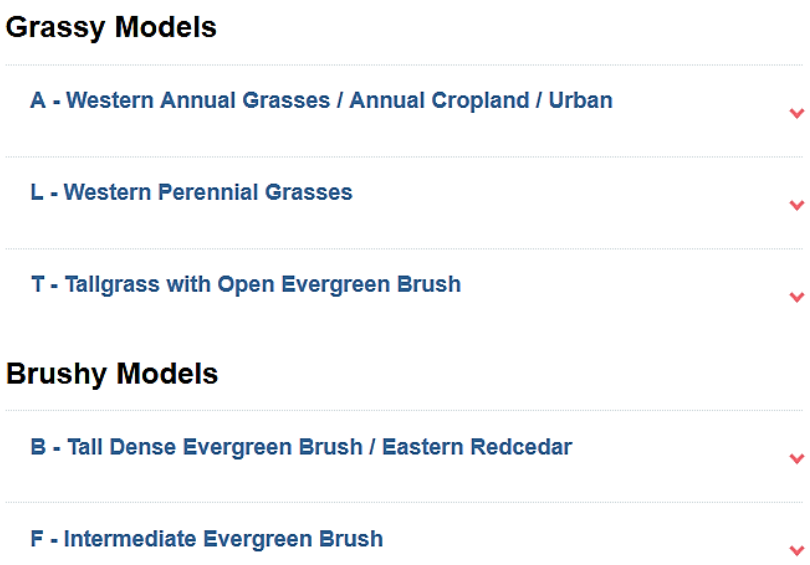
Forest Models

G - Forest with heavy downed fuels
P - Southern pine forest
R - Hardwood forest

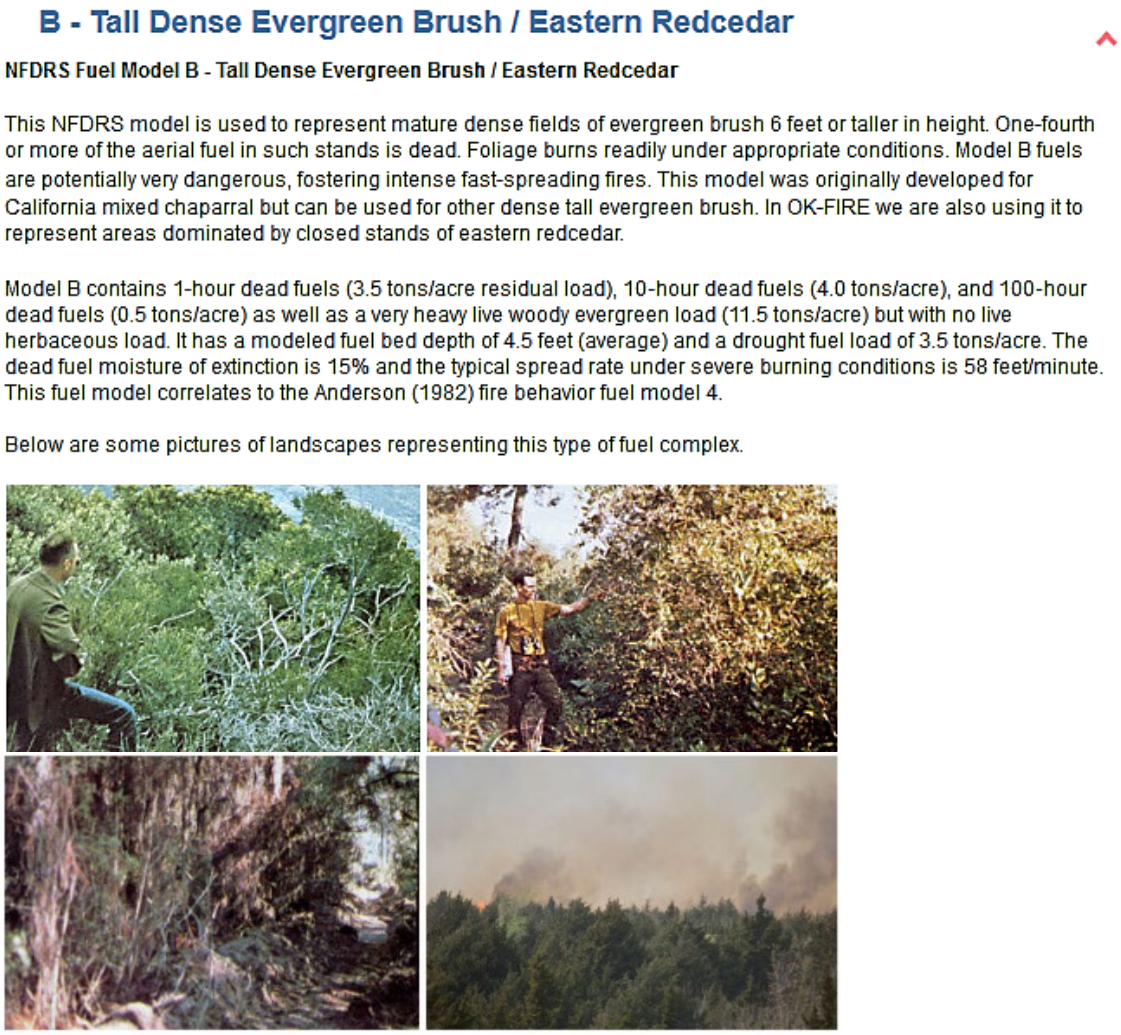
Light Slash

K - Light slash

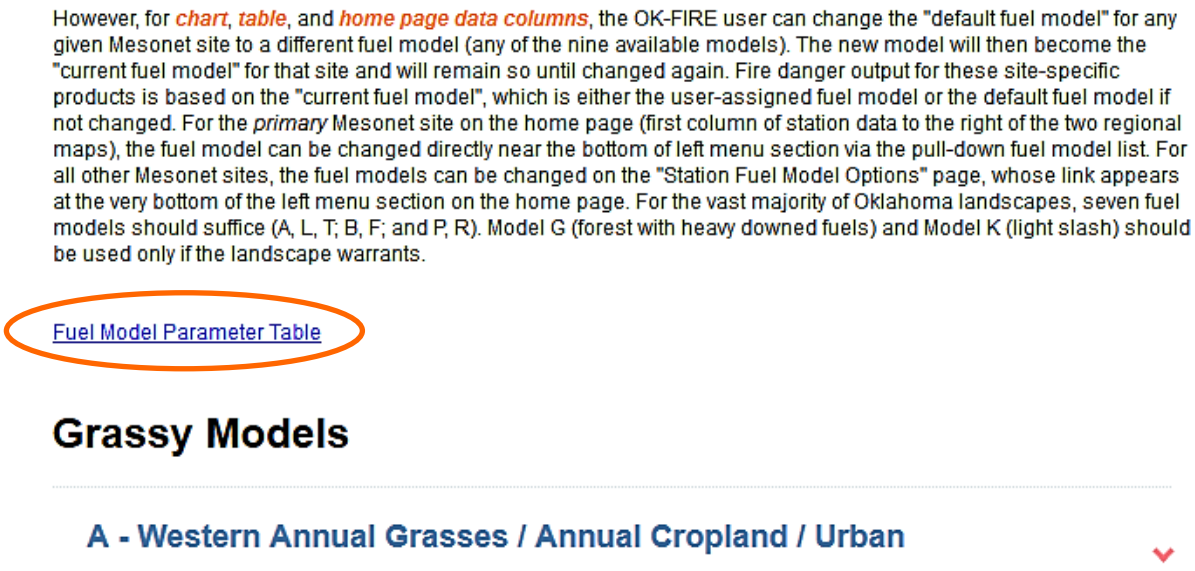
The models are grouped into “Grassy Models” (Models A, L, and T), “Brushy Models” (Models B and F), “Forest Models” (Models G, P, and R), and “Slash Models” (Model K).



If you click on a given model (in this case, Model B), you will get a text description of the model along with some representative photos:



Finally, if you wish to see the values of the different parameters that go into each of these fuel models, you can click on the link “Fuel Model Parameter Table” just before the list of Grassy Models.



You will then see the table of the fuel model parameters:

OK-FIRE Fuel Model Parameters

Fuel Model Parameters	1988 NFDRS Fuel Model*								
	Grassy Models			Brushy Models		Forest Models			Slash Model
	A**	L	T	B	F	G	P	R	K
Fuel loads (tons/acre)									
1-hour dead	0.2	0.25	0.75	3.5	2.5	2.5	0.75	0.67	2.5
10-hour dead	---	---	0.5	4.0	2.0	2.0	0.75	0.5	2.5
100-hour dead	---	---	---	0.5	1.5	5.0	0.5	0.5	2.0
1000-hour dead	---	---	---	---	---	12.0	---	---	2.5
live woody	---	---	2.5	11.5	7.0	0.5	0.5	0.66	---
live herbaceous	0.3	0.5	1.25	---	1.0	0.5	0.5	0.67	---
drought	---	---	0.5	3.5	2.5	5.0	1.0	1.0	2.5
Dead fuel moisture of extinction (%)	15	15	15	15	15	25	20	20	25
Fuel bed depth (ft)	0.8	1.0	1.39	4.5	4.5	1.0	0.34	0.3 – 0.37	0.6
Typical spread rate in severe burning conditions (ft/min)	301	178	96	58	24	30	14	6 – 25	23

* All fuel models listed above have been modified in part from the original 1988 models except for B, F, G, and K.

** Model A is also used to represent urban landscapes and agricultural fields where annual crops are planted.